REMARKS

The Office Action mailed May 30, 2008, and made final, has been carefully reviewed and the foregoing amendment has been made in consequence thereof.

Claims 1-10 are now pending in this application. Claims 1-10 stand rejected. Claims 11-23 were previously canceled.

The rejection of Claims 1-10 under 35 U.S.C. § 103(a) as being unpatentable over U.K. Patent GB 2 052 251 to Büttner, et al. (hereinafter referred to as "Büttner") in view of either U.S. Patent 3,223,108 to Martz, Jr. (hereinafter referred to as "Martz") or U.S. Patent 5,315,847 to Takeda et al. (hereinafter referred to as "Takeda") is respectfully traversed.

Initially, Applicant respectfully traverses the Examiner's assertion in the Office Action that "[a]s for the function/operation of the controller, the same is of little patentable weight in apparatus claims in that it is old and well known that the controller has many possible functions." Further, while the Examiner acknowledges that "the prior [art] fails to disclose function/operation as now claimed", the Examiner maintains his position "that, in apparatus claims, if the prior art discloses a controller and all of the claimed structure, notwithstanding function/operation of the controller, the claim subject is met since the device is clearly functioning as claimed."

Applicant respectfully disagrees with the Examiner's position. MPEP § 2173.05(g) states that "[a] functional limitation must be evaluated and considered, just like any other limitation of the claim." Therefore, the features of Claim 1 that provide functional limitations must be evaluated and considered and must be either taught or suggested by the cited prior art. The Examiner merely concludes that the prior art teaches the functions of the claimed controller without evaluating and considering each functional limitation. As such, Applicant submits that the Examiner fails to set forth a *prima facie* obviousness rejection. Notwithstanding the above argument, and to expedite prosecution, Applicant has amended

4

Claim 1 as described herein. As such, amended Claim 1 is submitted to be patentable over the cited prior art.

Büttner describes a method of controlling the operation of a washing machine based on one of a measured surface tension, a pH value, and an electrical conductivity of water introduced into the washing machine. For example, Büttner describes limiting the number of rinsing operations of a washing machine based on the surface tension of the water in the washing machine reaching a predetermined surface tension. Büttner also describes limiting the number of rinsing operations of a washing machine based on the pH value of the water in the washing machine reaching a predetermined pH value or the conductivity of the water in the washing machine reaching a predetermined conductivity. Notably, Büttner does not describe or suggest a washing machine that includes a resistance network having a sensor, a resistor, and a voltage source, wherein the sensor is positioned and configured to sense a conductivity of a fluid in the tub, and wherein the voltage source is operable to provide a sinusoidal wave input or a square wave input to the sensor to facilitate deterring mineral buildup on the sensor.

Martz describes an apparatus for controlling the characteristics of wash and rinse liquids of an automatic washing machine as a function of the relative conductivities of the liquids. The apparatus includes a sensing control (48) and a timer (49). The control circuitry of the sensing control (48) includes a series of sensors (32, 39, and 40) and a series of resistors (i.e. 94, 95, 96, 99, and 100). A first sensor (32) measures the conductivity of the rinse water containing detergent, and a second sensor (40) measures the conductivity of the incoming water supply. A signal is developed between points (113 and 114) of a bridge circuit, and a direct current is developed through resistor (99) of a value proportional to the difference in the conductivities measured. A second signal is developed at point (104) due to a high resistance measured by a third sensor (39). The currents developed by the two signals flow through resistor (100) in opposite directions such that an insufficient potential is developed to actuate a trigger device (101). As the supply or rinse water continues to fill the washing machine, the conductivity of the water in the machine changes and the resistance increases due to the conductivity measured by sensor (32) more nearly equaling that

measured by sensor (40). Thus, the net signal developed across resistor (100) increases, and when sufficient rinse water has been added to reduce the detergent concentration to the desired level, the trigger device (101) switches on activating relay (84) to continue the wash cycle. Notably, Martz does not describe or suggest a washing machine that includes a resistance network having a sensor, a resistor, and a voltage source, wherein the sensor is positioned and configured to sense a conductivity of a fluid in the tub, and wherein the voltage source is operable to provide a sinusoidal wave input or a square wave input to the sensor to facilitate deterring mineral buildup on the sensor. Moreover, Martz does not describe or suggest a controller configured to control an amount of the fluid in the tub during a rinse cycle based on the conductivity of the fluid measured at an end of a wash cycle, wherein the controller includes a microcomputer that is programmed to determine a desirable achievable rinse level, measure an average liquid conductivity at predetermined water levels during the rinse operation, calculate an overall change in conductivity based on the measured average liquid conductivity at each predetermined water level, compare the calculated overall change in conductivity to the desirable achievable rinse level, and cease the rinse operation when the overall change in conductivity exceeds an acceptable change percentage of the desirable achievable rinse level.

Takeda describes a washing machine that includes a washing/dehydrating tank (5), a water storage tank (7), an agitation blade (6), and a sensor (15) for detecting an electric conductivity of washing water in the washing tank and the water storage tank. The sensor (15) is fixed to the bottom of the water storage tank (7). During a rinsing step, the conductivity of the rinsing water before rotation of the agitation blade (6) and the conductivity of the rinsing water after rotation of the agitation blade (6) is detected by the sensor (15) to be compared and calculated to determine the number of rinsing cycles to carry out an appropriate rinsing operation in accordance with the detergent contained in the washing. Notably, Takeda does not describe or suggest a washing machine that includes a resistance network having a sensor, a resistor, and a voltage source, wherein the sensor is positioned and configured to sense a conductivity of a fluid in the tub, and wherein the voltage source is operable to provide a sinusoidal wave input or a square wave input to the

sensor to facilitate deterring mineral buildup on the sensor. Moreover, Takeda does not describe or suggest a controller configured to control an amount of the fluid in the tub during a rinse cycle based on the conductivity of the fluid measured at an end of a wash cycle, wherein the controller includes a microcomputer that is programmed to determine a desirable achievable rinse level, measure an average liquid conductivity at predetermined water levels during the rinse operation, calculate an overall change in conductivity based on the measured average liquid conductivity at each predetermined water level, compare the calculated overall change in conductivity to the desirable achievable rinse level, and cease the rinse operation when the overall change in conductivity exceeds an acceptable change percentage of the desirable achievable rinse level.

Claim 1 recites a washing machine including "a tub; a resistance network comprising a sensor, a resistor, and a voltage source, said sensor positioned and configured to sense a conductivity of a fluid in said tub, said voltage source operable to provide one of a sinusoidal wave input or a square wave input to said sensor to facilitate deterring mineral buildup on said sensor; and a controller operatively coupled to said sensor and configured to control an amount of the fluid in said tub during a rinse cycle based on the conductivity of the fluid measured at an end of a wash cycle, said controller comprising a microcomputer programmed to: determine a desirable achievable rinse level; at predetermined water levels during the rinse operation, measure an average liquid conductivity; calculate an overall change in conductivity based on the measured average liquid conductivity at each predetermined water level; compare the calculated overall change in conductivity to the desirable achievable rinse level; and cease the rinse operation when the overall change in conductivity exceeds an acceptable change percentage of the desirable achievable rinse level."

None of Büttner, Martz, and Takeda, considered alone or in combination, describes or suggests a washing machine, as recited in Claim 1. More specifically, none of Büttner, Martz, and Takeda describes or suggests a washing machine that includes a resistance network having a sensor, a resistor, and a voltage source, wherein the sensor is positioned and configured to sense a conductivity of a fluid in the tub, and wherein the voltage source is operable to provide a sinusoidal wave input or a square wave input to the sensor to facilitate

deterring mineral buildup on the sensor. Moreover, none of Büttner, Martz, and Takeda describes or suggests a controller configured to control *an amount of the fluid* in the tub during a rinse cycle based on the conductivity of the fluid measured at an end of a wash cycle, wherein the controller includes a microcomputer that is programmed to determine a desirable achievable rinse level, measure an average liquid conductivity at predetermined water levels during the rinse operation, calculate an overall change in conductivity based on the measured average liquid conductivity at each predetermined water level, compare the calculated overall change in conductivity to the desirable achievable rinse level, and cease the rinse operation when the overall change in conductivity exceeds an acceptable change percentage of the desirable achievable rinse level. Rather, in contrast to the present invention, Büttner describes a method of determining *a number of rinsing operations* based on when the rinsing water reaches the conductivity of the water introduced into the washing machine, Martz describes an electric circuitry that controls a series of switches based on the current created by the conductivity of the source water and the water in the washing machine, and Takeda describes a method of determining *a number of rinsing operations* based on a difference in the conductivity of the water in the washing machine before rotation of the agitation blade and after rotation of the agitation blade in the rinse cycle.
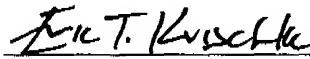
Accordingly, for at least the reasons set forth above, Claim 1 is submitted to be patentable over Büttner in view of Martz or Takeda.

Claims 2-10 depend from independent Claim 1. When the recitations of Claims 2-10 are considered in combination with the recitations of Claim 1, Applicant submits that dependent Claims 2-10 likewise are patentable over Büttner in view of Martz or Takeda.

For at least the reasons set forth above, Applicant respectfully requests that the Section 103 rejection of Claims 1-10 be withdrawn.

In view of the foregoing amendment and remarks, all the claims now active in this application are believed to be in condition for allowance. Reconsideration and favorable action is respectfully solicited.

Respectfully submitted,

Eric T. Krischke
Registration No. 42,769
ARMSTRONG TEASDALE LLP
One Metropolitan Square, Suite 2600
St. Louis, Missouri 63102-2740
(314) 621-5070